

Appl. No. 09/726,785  
Brief on Appeal



#14

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**IN THE UNITED STATES  
PATENT AND TRADEMARK OFFICE**

Appl. No.: 09/726,785

Applicant(s): M.G. Bel, et al.

Filed: November 30, 2000

Title: DISPLAY DEVICE WITH CHANNELS

HAVING A DECREASING DEPTH

TC/A.U.: 2600/2673

Examiner: L. Shapiro

Atty. Docket: N17,756

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By: *William S. Francos*  
William S. Francos

**BRIEF ON APPEAL BEFORE THE BOARD OF PATENT APPEALS AND  
INTERFERENCES**

Honorable Assistant Commissioner of Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

In connection with the Notice of Appeal filed on April 17,  
2003, Applicants provide the following Brief on Appeal in  
triplicate in the above captioned application.

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**1. Real Party in Interest**

The real party in interest as assignee of the entire right and title to the invention described in the present application is U.S. Philips Corporation having an address at 1251 Avenue of the Americas, New York, NY 10020.

**2. Related Appeals and Interferences**

There are no known related appeals or interferences at this time.

**3. Status of the Claims**

Claims 4-6 are pending and have been twice rejected. Rejected claims 4-6 are duplicated in Appendix I.

**4. Status of Amendments**

A Final Office Action on the merits was mailed on January 22, 2003. In response thereto, an Amendment and/or Response under 37 C.F.R. § 113 and/or 37 C.F.R. § 116 was filed on March 11, 2003. An Advisory Action was mailed March 24, 2003. The Advisory Action indicates that the Response of March 11, 2003 would be entered for the purposes of Appeal.

**5. Summary**

Fig. 1 shows a flat panel display system 10 according to an illustrative embodiment. The flat panel display system comprises a display panel 12 having a display surface 14 that contains a pattern formed by a rectangular planar array of nominally identical data storage or display elements 16 mutually spaced apart in the vertical and horizontal directions. Each display element 16 in the array represents the

overlapping portions of thin narrow electrodes 18 arranged in vertical columns (column electrodes) and elongate, narrow channels 20 arranged in horizontal rows (row electrodes).

Fig. 2 shows row electrodes 20 formed by a plurality of parallel elongated sealed channels underlying (in Fig. 2) a layer 42 of the LC material. Each channel 20 is filled with an ionizable gas 44, closed off with a dielectric sheet 45 typically of glass, and contains, on an interior channel, first and second spaced elongated electrodes 30, 31 which extend through the full length of each channel in this example. The first electrode 30 (the cathode) is at a first potential (for instance, ground). The second electrode 31 (the anode) supplies a pulse voltage (strobe pulse) which is positive, relative to the potential on the cathode, and is sufficient to cause electrons to be emitted from the cathode 30 to ionize the gas in the channel(s). In an embodiment, the electrodes 30, 31 are disposed in the bottom of the channels 20.

Fig. 5 shows the different parts of the channels of an illustrative embodiment in cross-section. The central part 52 of the channels has a depth  $D$  and is flanked by a part 53 which has a depth  $D-D'$  where  $D' < D$ . This can be realized, for instance, by a groove 56. The third portion 54 basically has a shape and form, which is equivalent to the central portion 52, be it that the longitudinal dimension (along the direction of the channels) is relatively small. The final portion of the channels 20 is formed by a sloping ramp part 55. Immediately beside the part 54, the depth of the channels is  $D-D''$  where  $D'' < D$  and preferably  $D' = D''$ . This depth decreases towards the outer edge 57 of peripheral part 51, becoming zero on the peripheral part, which is schematically indicated by line 59 in

Figure 5. The electrodes 30 and 31 are situated at the bottom of the channels and extend from the channels onto the peripheral part 51.

Because of the sloping ramp 55, the electrodes 30, 31 can be provided to extend in the channels and on the peripheral part smoothly, i.e. without having to overcome a step in height. Such steps in the height can adversely impact the voltages/electric fields in the channel, and thus the quality and reliability of the display system.

(Please refer to page 3, lines 25-33; page 4, line 26 through page 5, line 16; page 5, line 27 through page 6, line 8; and page 8, lines 6-19 of the filed application for support for the above.)

## **6. Issues on Appeal**

**I.** The first issue on Appeal is whether claim 4 is properly rejected under 35 U.S.C. 103(a) as being unpatentable over *Tsuruoka, et al.* (U.S. Patent No. 6,373,190 B1) in view of *Bongaerts, et al.* (U.S. Patent No. 5,596,431).

**II.** The second issue on Appeal is whether claim 5 is properly rejected under 35 U.S.C. 103(a) as being unpatentable over *Tsuruoka, et al.* (U.S. Patent No. 6,373,190 B1) in view of *Bongaerts, et al.* (U.S. Patent No. 5,596,431), and further in view of *Asano, et al.* (U.S. Patent No. 6,353,288 B1).

**III.** The third issue on appeal is whether claim 6 is properly rejected under 35 U.S.C. 103(a) as being unpatentable over *Tsuruoka, et al.* (U.S. Patent No. 6,373,190 B1) in view of *French* (U.S. Patent No. 6,400,423 B1).

## 7. Grouping of Claims

Group I: Claim 4 stands or falls alone.

Group II: Claim 5 stands or falls alone.

Group III: Claim 6 stands or falls alone.

## 8. Argument

I. The first issue on appeal is the propriety of the rejection of claim 4 under 35 U.S.C. § 103(a) in view of *Tsuruoka, et al.* (U.S. Patent No. 6,373,190 B1) and *Bongaerts, et al.* (U.S. Patent No. 5,596,431). For at least the reasons that follow, this rejection is improper and should be withdrawn.

A proper rejection under 35 U.S.C. § 103(a) requires that **all** of the claimed elements be found in the applied art. If a **single** claimed element is not found in the applied art, a prima facie case of obviousness cannot be properly established.

Furthermore, obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is a teaching, suggestion or motivation to do so found in the references themselves or in the knowledge generally available to one of ordinary skill in the art. *In re Fine* 5 USPQ 2d 1596 (1988). However, hindsight is never an appropriate motivation for combining references and/or the requisite knowledge available to one having ordinary skill in the art. To this end, relying upon hindsight knowledge of applicants' disclosure when the prior art does not teach nor suggest such knowledge results in the use of the invention as a template for its own reconstruction. This is wholly improper in the determination of patentability. *Sensonics Inc. v Aerosonics Corp.*, 38 USPQ 2d

1551-1554 (1996), citing *W.L. Gore & Associates, Inc. v. Garlock, Inc.* 220 USPQ 303.

The Office asserts that *Tsuruoka, et al.* teach all of the features of claim 4 except electrodes disposed in longitudinal channels. Applicants respectfully disagree.

Claim 4 is drawn to a display device having a plurality of channels, and "...each **channel** comprises a sloping ramp (55) sloping from said bottom plane (I) to said plane (III) and ending in said peripheral part (50,51)."

As shown in the embodiments of Figs. 3 and 5 of the application as filed, the sloping ramp 55 is the final portion of the channel 20. Immediately beside the part 54 the depth of the channel is D-D". The depth of the channel decreases towards the outer edge 57 of the peripheral part 51 becoming zero at the peripheral part. This is indicated schematically by line 59 in Fig. 5. The electrodes 30, 31 are situated at the bottom of the channels and extend from the channels onto peripheral part 51. Because of the sloping ramp 55, the electrodes 30, 31 can be to extend in the channels on the peripheral part smoothly, i.e., without having to overcome a step in height. (Please refer to page 5, line 34 through page 6, line 9 of the filed application for support for these assertions.)

In contrast to the features of claim 4, the applied reference to *Tsuruoka, et al.* is drawn to a method of forming ribs of a plasma display panel by transfer-printing a glass paste on a glass substrate. A rear plate unit of the display device of *Tsuruoka, et al.*, comprises a glass substrate (1, 31) with ribs 4, 34 arranged in parallel with each other formed on the substrate. A dielectric layer 3 conceals electrodes, and

is disposed beneath the ribs. The ribs 34 are joined at their lower part by the sheet-shaped joining element 35.

As *Tsuruoka, et al.* disclose, each **rib 34** has a sloped shape in its end portion on the side of the terminals of the address electrodes. That is, **the height of each rib 34** in the end portion is gradually reduced toward the side of the terminals of the address electrodes. This makes transfer-printing from the portion of the joining element 35 on the side of the terminals 32 of the address electrodes smooth and stable. (Please refer to Figs. 1 and 3, column 3 lines 45-63 and column 4 lines 32-54 of *Tsuruoka, et al.* for support for these assertions.)

The teachings of *Tsuruoka, et al.* are clearly different than the highlighted portion of claim 4. For example, it is the **ribs 34** of *Tsuruoka, et al.* that have a sloping end portion. Furthermore, *Tsuruoka, et al.* also lacks a teaching or suggestion of **channels having a sloping portion** as set forth in claim 4. Finally, the *Tsuruoka, et al.* also lacks a teaching or suggestion of the delimitation of the channels as having sloping ramps *sloping from said bottom plane (I) to said plane (III) and ending in said peripheral part (50,51)* as set forth in claim 4.

For at least the reasons set forth above, the reference to *Tsuruoka, et al.* lacks the teaching or suggestion of at least one of the features of claim 4, as the Office asserts. For this reason alone, the rejection under 35 U.S.C. § 103(a) is improper and should be withdrawn.

The Office then relies upon the reference to *Bongearsts, et al.* for a teaching of elongated electrodes that extend the full length of a channel. As referenced above, a requirement of a

prima facie case of obviousness is a teaching, suggestion or motivation to combine the applied references that is found in the references themselves. Applicants respectfully refute the propriety of the combination of *Tsuruoka, et al.* and *Bongeaerts, et al.* for at least the following reasons.

The reference to *Tsuruoka, et al.* discloses a method of forming ribs of a plasma display panel by transfer printing a glass paste on a substrate. Notably, the reference is void of a teaching of the operating conditions of the plasma device, particularly of ionizing gas. Furthermore, *Tsuruoka, et al.* is unconcerned with losses due to steps in the height of a channel that can adversely impact the voltages/electric fields in the channel, and thus the quality and reliability of a display system. The features of claim 4 address these issues.

Accordingly, it is respectfully asserted that one of ordinary skill in the art having had the benefit of *Tsuruoka, et al.* may recognize certain benefits in transfer printing techniques in display devices, but would not recognize the problems associated with steps in height in the channels of plasma devices.

Accordingly, for at least the reasons set forth above, the requisite suggestion or motivation to combine the applied references is lacking. For at least this reason, the rejection of claim 4 under 35 U.S.C. § 103(a) is improper and should be withdrawn.

II. The second issue on appeal is the propriety of the rejection of claim under 35 U.S.C. § 103(a) in view of *Tsuruoka, et al.* (U.S. Patent No. 6,373,190 B1) and *Bongaerts, et al.* (U.S. Patent No. 5,596,431), and further in view of



*Asano, et al.* For at least the reasons that follow, this rejection is improper and should be withdrawn.

A proper rejection under 35 U.S.C. § 103(a) requires that **all** of the claimed elements be found in the applied art. If a **single** claimed element is not found in the applied art, a prima facie case of obviousness cannot be properly established.

Furthermore, obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is a teaching, suggestion or motivation to do so found in the references themselves or in the knowledge generally available to one of ordinary skill in the art. *In re Fine* 5 USPQ 2d 1596 (1988). However, hindsight is never an appropriate motivation for combining references and/or the requisite knowledge available to one having ordinary skill in the art. To this end, relying upon hindsight knowledge of applicants' disclosure when the prior art does not teach nor suggest such knowledge results in the use of the invention as a template for its own reconstruction. This is wholly improper in the determination of patentability. *Sensonics Inc. v Aerosonics Corp.*, 38 USPQ 2d 1551-1554 (1996), citing *W.L. Gore & Associates, Inc. v. Garlock, Inc.* 220 USPQ 303.

The Office asserts *Tsuruoka, et al.* and *Bongaerts, et al.* "...teach a display device with electrodes provided at the bottom of the channels..." The Office refers to Fig. 4, items 41 and 42 and column 5, lines 3-19, but does not state the whether it is *Tsuruoka, et al.* or *Bongaerts, et al.* that is being referenced. (Please refer to page 3 of the January 22, 2003 Office Action). Applicants respectfully submit that because of the lack of clarity in this portion of the January 22, 2003 Office Action,

the goal of examination set forth in MPEP § 706 (E8, August 2001) has not been met. It is respectfully submitted that this rejection is therefore improper.

Notwithstanding the impropriety of this rejection, applicants further refute this rejection for at least the following reasons.

If it is a portion of the former patent that is referenced, it is submitted that Fig.4 of *Tsuruoka, et al* illustrates a mold, which for reasons discussed in the response filed on January 9, 2003, is not germane to the claims under discussion. To wit, *Tsuruoka, et al.* is drawn to a method of forming ribs of a plasma display device. Figs. 2 and 4 of *Tsuruoka, et al.* are drawn to **molds for forming ribs of a plasma display device**. The recesses 21 and 41 of the molds are filled with a glass paste for forming the ribs 4 and 34 shown in Figs. 1 and 3, respectively. Clearly, **the mold having recesses 41 of *Tsuruoka, et al.* is not the plate of a display device having longitudinal channels** as recited in claim 4.

Moreover, if the Office is relying on the reference to *Tsuruoka, et al.*, the quoted portion of the Office Action directly contradicts the position of the Office set forth at page 2 of the January 22 Office Action that the reference to "*Tsuruoka, et al.* does not teach electrodes disposed in longitudinal channels."

If the Office is referencing Fig. 4 of the latter patent, it is submitted that the electrodes 69 of *Bongaerts, et al.* are disposed on the side surfaces of the channel, and not on the bottom surfaces as featured in claim 4. (Please refer to Fig. 4 and column 5, lines 52-63 of *Bongaerts, et al.*)

As such, it is submitted that the referenced portion of

the rejection of claim 5 is unfounded, and this rejection should be withdrawn for at least the reasons set forth above.

Finally, applicants reiterate that the combination of *Tsuruoka, et al.* and *Bongaerts, et al.* is improper.

Accordingly, for at least the reasons set forth above, the rejection of claim 5 is improper and should be withdrawn.

III. The third issue on appeal claim 6 is the propriety of the rejection of claim 6 is properly rejected under 35 U.S.C. 103(a) as being unpatentable over *Tsuruoka, et al.* and *Bongaerts, et al.* in view of *French*.

A proper rejection under 35 U.S.C. § 103(a) requires that **all** of the claimed elements be found in the applied art. If a **single** claimed element is not found in the applied art, a prima facie case of obviousness cannot be properly established.

Furthermore, obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is a teaching, suggestion or motivation to do so found in the references themselves or in the knowledge generally available to one of ordinary skill in the art. *In re Fine* 5 USPQ 2d 1596 (1988). However, hindsight is never an appropriate motivation for combining references and/or the requisite knowledge available to one having ordinary skill in the art. To this end, relying upon hindsight knowledge of applicants' disclosure when the prior art does not teach nor suggest such knowledge results in the use of the invention as a template for its own reconstruction. This is wholly improper in the determination of patentability. *Sensonics Inc. v Aerosonics Corp.*, 38 USPQ 2d 1551, 1554 (1996), citing *W.L. Gore & Associates, Inc. v.*

*Garlock, Inc.* 220 USPQ 303.

Applicants reiterate that the combination of *Tsuruoka, et al.* and *Bongaerts, et al.* is improper. Moreover, applicants do not concede as to the propriety of the three-way combination of references set forth in the January 22, 2003 Office Action.

Applicants respectfully submit that claim 6 is patentable over the applied art reference to *French*, at least because *French* does not teach or suggest the patentable feature that **"...channels are provided by moving a grinding wheel or grinding wheels across said plate along a direction, said grinding being started at a position away from an outer edge (57) of said plate (36) and being stopped before said grinding wheel reaches an opposite outer edge of said plate."**

The reference to *French* is relied on for the teaching of channel forming by a grinding technique. While mechanical grinding may form the channels of *French*, there is no teaching or suggestion in the reference of the **commencement and termination of the grinding**, which are specifically featured in claim 6. To wit, the quoted portions of the method of claim 6 are neither taught nor suggested in *French*. (Please refer to column 3, lines 24-25 and column 6, lines 6-24 of the reference to *French* for support for these assertions.)

Accordingly, because the applied reference to *French* lacks at least the referenced portion of claim 6, the rejection based on *French* is improper and should be withdrawn.

### **Conclusion**

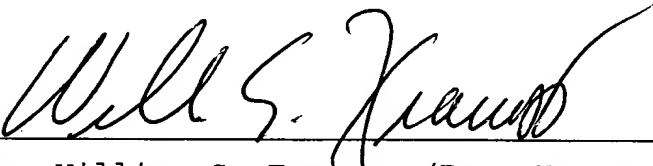
In view of the foregoing, applicant(s) respectfully request(s): the withdrawal of all objections and rejections of

record; the allowance of all the pending claims; and the holding of the application in condition for allowance. If any points remain in issue that may best be resolved through a personal or telephonic interview, the Examiner is respectfully requested to contact the undersigned at the telephone number listed below.

If necessary, the Commissioner is hereby authorized in this, concurrent, and further replies to charge payment or credit any overpayment to Deposit Account Number 50-0238 for any additional fees under 37 C.F.R. §1.16 or under 37 C.F.R. §1.17.

In the event that there are any outstanding matters remaining in the present application, the Examiner is invited to contact William S. Francos, Esq. (Reg. No. 38,456) at (610) 375-3513 to discuss these matters.

Respectfully submitted on behalf of:  
Phillips Electronics North America Corp.

A handwritten signature in cursive script, appearing to read "Will S. Francos", is written over a horizontal line.

by: William S. Francos (Reg. No. 38,456)

July 17, 2003

Volentine Francos, PLLC  
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APPENDIX I  
Claims on Appeal

Claims on Appeal:

4. A display device (10) comprising:

a plate (36) having longitudinal channels (20) and a peripheral part (50,51), which is adjacent to at least one side of said longitudinal channels (20); and

electrodes (30, 31) disposed in said longitudinal channels (20), said electrodes exiting said longitudinal channels (20) on said peripheral part (50, 51), wherein said peripheral part extends in a plane (III) between a bottom plane (I) through bottoms of said longitudinal channels (20) and a top plane (II) through a top of said longitudinal channels (20), and each channel comprises a sloping ramp (55) sloping from said bottom plane (I) to said plane (III) and ending in said peripheral part (50,51).

5. A display device as claimed in claim 4, wherein said electrodes (30, 31) are provided at said bottom of said longitudinal channels (20) and each longitudinal channel comprises a central part (52) having a first depth, flanked on one or both sides by a second portion (53) having a reduced depth, a third portion (54) having a depth corresponding to said first portion (52), bottoms of said first, second and third portions extending in said bottom plane (I); and a fourth portion comprising said sloping ramp (55), said second portion forming (53) a groove in said plate, in which groove a sealing material is provided.

6. A method of manufacturing a display device, the method

comprising:

providing a plate (36) having longitudinal channels (20) and a peripheral part (50, 51) adjacent to at least one side of said channels;

disposing electrodes (30,31) in said longitudinal channels, said electrodes extending in said channels (20) and exiting said channels on said peripheral part; and

providing said peripheral part in said plate at a depth between a bottom and a top of said longitudinal channels, wherein said channels are provided by moving a grinding wheel or grinding wheels across said plate along a direction, said grinding being started at a position away from an outer edge (57) of said plate (36) and being stopped before said grinding wheel reaches an opposite outer edge of said plate.



APPENDIX II

Applied References

APPENDIX III

Cited Court Decisions